Cisco Media Gateway Controller Node Manager Installation Guide

Release 2.7(3)
January 2009

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Text Part Number: OL-14272-03

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Preface

This preface describes the objectives of this document and explains how to find additional information on related products and services. It contains the following sections:

- Document Objectives, page v
- Audience, page v
- Related Documentation, page v
- Obtaining Documentation and Submitting a Service Request, page vi
- Document Change History, page vi

Document Objectives

This installation guide provides information for installing and configuring the Cisco Media Gateway Controller (MGC) Node Manager (MNM). It also contains reference information for administrators, service technicians, and users.

Audience

The *Cisco MGC Node Manager (Cisco MNM) Installation Guide* is designed for

- System administrators who install and configure Cisco MNM
- Network Operations Center (NOC) personnel who use Cisco MNM to monitor the network and respond to events and alarms

This document describes Cisco MNM in the context of the Cisco Element Management Framework (Cisco EMF).

Cisco MNM enhances some capabilities of Cisco EMF. Therefore, this manual includes links to Cisco EMF documentation. You need to be familiar with both Cisco EMF and Cisco MNM to use some of the customizable features of Cisco MNM.

Related Documentation

The documents that contain information related to Cisco Media Gateway Controller Node Manager are at the following URL:

http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/tsd_products_support_series_home.html

The documents that contain information related to the Cisco PGW 2200 Softswitch are at the following URL:

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/tsd_products_support_series_home.html

You can also find the Cisco PGW 2200 Softswitch Documentation Map at the following URL:

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/products_documentation_roadmaps_list.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation at

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0

Document Change History

Subject	Document Number	Change Date	Change Summary
All	OL-14272-03	January 2009	Updated the Cisco EMF and Cisco MNM installation procedures.
Chapter 2, Installing Cisco MNM	OL-14272-02	October 2008	Updated the Cisco EMF and Cisco MNM installation procedures.
All	OL-14272-01	August 2008	Initial release.

CHAPTER 1

Installation Overview and Planning

This chapter provides overview and planning information for installation of the Cisco Media Gateway Controller (MGC) Node Manager (MNM). Chapter 2 provides detailed installation procedures.

Note In Cisco MNM Release 2.7(3), the Cisco Voice Services Provisioning Tool (VSPT) is packaged with Cisco MNM.

The following topics are covered in this chapter:

- Installation Overview, page 1-1
- Determine Your Hardware Requirements, page 1-2
- Installation Checklist, page 1-5

Installation Overview

Successful network management using Cisco MNM begins with a well planned and carefully executed installation. Network element management involves many interdependent factors, including:

- The correct Sun server for your network size
- The correct software release and patch levels on managed devices
- The correct installation of Cisco Element Management Framework (EMF), the foundation software for Cisco MNM
- Performing installation tasks in the required order, so that required items are in place

To organize the installation process, use the Installation Checklist, page 1-5 to plan and execute your installation. Read through the checklist and check off each task as it is completed.

Who Should Install Cisco MNM?

Installing Cisco MNM involves setting up hard drives and checking and modifying system files, tasks that are best performed by a system administrator with good knowledge of the Solaris operating system.

Determine Your Hardware Requirements

The hardware required and the way Cisco MNM is installed depend on the size of the network you are managing and the amount of data you collect. Use this section to determine your hardware requirements and software configurations.

Cisco MNM consists of server and client software. Using the Sun T2000 server, all small, medium and most large network can be managed from a single server where the client and server are combined. The multi-core, multi-thread architecture of Sun T2000 servers works well with VNC. It gives each VNC server a processor thread and keeps X-terminal traffic off the network. The combination of the Sun T2000 server and VNC for Cisco MNM provides excellent operator response time, even when your access is over WAN network connections. Here is a breakdown of the client and server roles in the situation that the distributed approach is needed.

Server Software

- Network management, including management of databases that contain network information, store alarms, and performance data
- GUI applications, with user interaction, when Cisco MNM is installed on a standalone server

Client Software

- GUI applications, with which users interact.

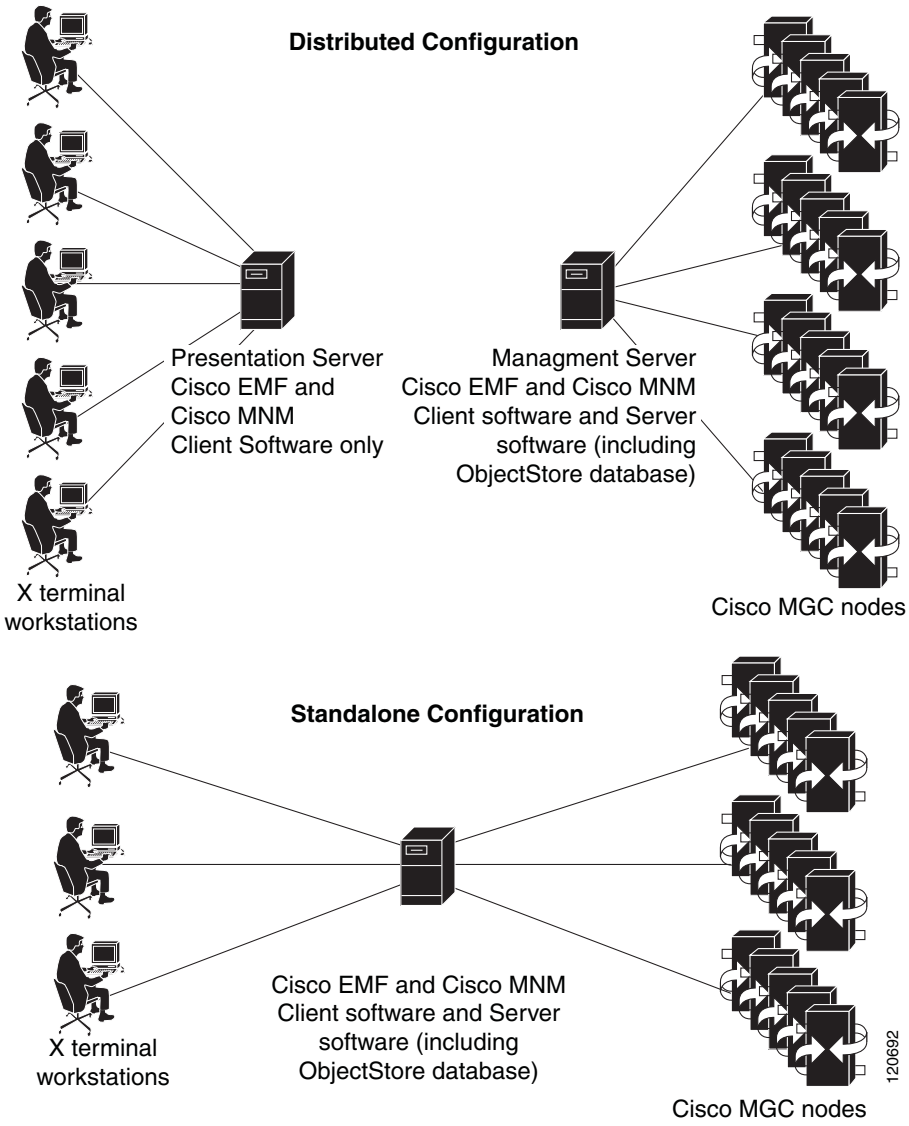
The Cisco EMF and Cisco MNM software runs on a separate machine, or on machines other than the Cisco MGC host. In a small network, server and client software might reside on a single machine (a standalone configuration). In larger networks, the software is installed on two or more machines in the following distributed configuration:

- One machine, known as the Management server, contains the server software (including the ObjectStore database management software included with Cisco EMF) and client software
- One machine, known as the Presentation server, contains the client software only. In some large networks, more than one Presentation server might be required.

In either configuration, users typically access Cisco MNM from X terminal workstations that run the Client software through a Telnet session. In the distributed configuration, the X terminal workstations connect directly to the Presentation server to run the Client software.

See the standalone and distributed configurations illustrated in Figure 1-1.

Figure 1-1 Standalone and Distributed Configurations



Note The Management server is sometimes called the Database server. The Presentation server is sometimes called the Client, GUI, or Application server. To avoid confusion, this document uses Management server and Presentation server consistently, and these terms denote the machines in a distributed configuration, not the software that resides on them.

The Cisco MNM client simultaneously supports up to ten X terminal users or VNC users. The exact number supported in a given installation depends on your processing resources and the network size.

Supported Configurations

The following configurations are supported:

- Cisco MNM and Cisco VSPT installed together on a network management server (recommended)

- Cisco VSPT (only) installed on a Cisco PGW 2200 Softswitch host machine
- Cisco MNM installed on a network management server and Cisco VSPT installed on a separate server

Caution Cisco MNM is not supported on a Cisco PGW 2200 Softswitch host machine.

Hardware Requirements

The Cisco MNM hardware requirements for various network sizes are described in Table 1-1. Except in a very small network, each operator requires an X terminal workstation.

Table 1-1 Hardware Requirements for Cisco MNM Host Machine(s)

Cisco PGW 2200 Softswitch Number, Network Size	Small Network, 1-3 Operators, 1-3 Pairs of Cisco PGW 2200 Softswitch	Medium Network , 4-6 Operators, 6-10 Pairs of Cisco PGW 2200 Softswitch	Large Network, 7-10 Operators, 11-20 Pairs of Cisco PGW 2200 Softswitch
RAM (GB)	8	8	16
Swap (GB)	8	8	16
Disk drives	2 x 73 G[1]	4 x 73 G RAID 0 (maximum performance) or 4 x 73 G RAID 0+1 (for stability)	4 x 73 G RAID 0 (maximum performance) or 4 x 73 G RAID 0+1 (for stability)
CPU	T2000—4 Core	T2000—4 Core	T2000—8 Core

1. Two-drive machines work for smaller networks that have less traffic and fewer operators. Response time to operator commands slows down as the network grows and additional operators are added.

Note Disk drive requirements are based on the number of drives. The Cisco MNM host machine requires the minimum number of drives indicated in Table 1-1. These are *recommendations* to aid you in planning. The total amount of disk space required depends on many factors, such as the amount of alarm and performance data collected.

Disk Drives and Database Storage

In a medium or large network, using multiple disk drives to store databases helps alleviate I/O bottlenecks and improves software performance. If you are using multiple disk drives for database storage, or you expect to generate large database files, use raw partitions, as described in the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Note If you are using Unix File System (UFS) partitions, installing more than one drive for database storage does not improve performance because the databases cannot span multiple partitions.

Installation Checklist

This checklist summarizes the tasks required for an initial installation of Cisco MNM. The procedures for completing each task are provided in the following chapter.

We recommend that you print out the checklist and use it during the installation. Perform the tasks in sequence unless otherwise noted.

Before You Begin

Note Read the release notes. If information there differs from what is presented here, use the information in the release notes.

Determine Your Hardware Requirements, as described in this chapter.

___ Task 1: Gather Installation Software and Required Information.

___ Task 2: Ensure That Network Devices Have the Correct Software.

___ Task 3: Plan and Execute Hard Drive Partitioning.

___ Task 4: Ensure That the Sun Solaris 8 or 10 Operating System Is Installed.

___ Task 5: Make System Configuration Modifications.

___ Task 6: Obtain a Cisco EMF License.

___ Task 7: Install CiscoView 6.1(6) on a Solaris 10 Operating System. This task is required only if you want to manage Cisco ITP-Ls or LAN switches from Cisco MNM, which uses the CiscoView server as the management interface.

CiscoView now ships as part of LMS 3.0 with MGC Node Manager. Only the CiscoView part of LMS is provided. To obtain licenses for other LMS features, order LMS 3.0 from the Cisco.com website.

Cisco MNM Release 2.7(3) includes CiscoView for Solaris 10 only. CiscoView for Solaris 8 is not provided with the Cisco MNM media kit. However, previous CiscoView versions shipped with previous Cisco MNM media kits can be re-used. New Cisco MNM customers should be using Solaris 10 for best long-term satisfaction and full CiscoView support. New Cisco MNM customers who only use Solaris 8 operating systems must obtain CiscoView for Solaris 8 separately, possibly by purchasing the appropriate LMS 2.5.1 package.

___ Task 8: Install Cisco EMF 3.2.

___ Task 9: Install Cisco MNM Release 2.7(3) and Verify the Installation.

Note If you want to install other element managers to run co-resident with Cisco MNM, install them now.

___ Task 10: Install the CiscoView Security Module (if you are using CiscoView).

___ Task 11: Set Up the X Terminal Workstations for Remote Access. The CiscoView Security module restricts non-MNM users from accessing the CiscoView Web client. If you want to be able to access the CiscoView external web browser, do not install this module.

___ Task 12. Synchronize Time.

___ Task 13: Configure Network Devices to Forward Alarms. This task, which must be completed before Cisco MNM can collect alarm information from network devices, is covered in Chapter 2 in the "Configuring Network Devices for Management" section of the *Cisco Media Gateway Controller Node Manager User's Guide,* Release 2.7(3).

CHAPTER 2

Installing Cisco MNM

This chapter provides detailed instructions for the following installation tasks:

- Performing a New Installation of Cisco MNM, page 2-1
- Upgrading from Previous Cisco MNM Releases, page 2-21
- Uninstalling Cisco MNM, page 2-23
- Displaying Current Cisco MNM Release Packages, page 2-24
- Viewing Help for Cisco MNM Install Scripts, page 2-25
- Uninstalling Cisco EMF, page 2-25
- Troubleshooting Common Installation Problems, page 2-26

Before you begin

- Read the Installation Overview, page 1-1
- Determine Your Hardware Requirements, page 1-2
- Print the Installation Checklist, page 1-5 and use it to guide your installation.

Performing a New Installation of Cisco MNM

Task 1: Gather Installation Software and Required Information

This section describes the software and information you need before you begin the installation.

Installation Software

Cisco MNM and Cisco VSPT Software

Your order includes the following:

- Cisco Media Gateway Controller Node Manager, Release 2.7(3), including the Cisco MNM element managers that work with Cisco EMF.
- Cisco Element Management Framework (Cisco EMF) 3.2. This software includes Cisco EMF Service Packs 7, 7.1, and 7.2. Also included is ObjectStore 5.1, which provides the database management.

See the latest Cisco EMF 3.2 software patch and release note (an Acrobat PDF file, such as *CEMF3.2P7DepRelNote.pdf*) at the following URL.

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2/release/notes/rn_3_2.html

For all releases of 3.2 release notes, go to the following URL.

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/release/notes/rn3_2sp7.html

- CEMF Crypto Add-on Package Software

  If you want to use SSH for secure communications with SSH-enabled network components, download the CEMF Crypto Add-On package available at

  http://www.cisco.com/cgi-bin/tablebuild.pl/cemf-addon-3des

  Download both the CEMF Crypto Add-on Package Software and the *CEMF Crypto Add-on Package Installation Guide*. You must have authorization to download cryptographic software. If you do not have it, you are automatically redirected to an authorization request page.

- CiscoView 6.1(6) (from LMS DVD—Solaris 10 only). Install CiscoView 6.1(6) if you want to manage Cisco ITP-Ls or Cisco LAN switches (Cisco MNM uses the CiscoView server as the management interface). Install CiscoView *before* you install Cisco EMF and Cisco MNM. The full LMS 3.0 package is not licensed when included with Cisco MNM. However, you can purchase the complete LMS 3.0 product and install it with the MGC Node Manager on the same Sun Server. Make sure there is enough disk and partition space, since the full LMS package is large.

  Note If Cisco MNM coexists with CiscoView 6.1(6) on a Solaris 10 Operating System, the version of the Solaris Operating System must be the November 2006 release or higher, and the minimum recommended cluster patch levels are those released April 17, 2007.

- Cisco VSPT. The Cisco VSPT version must support your version of the Cisco PGW 2200 Softswitch software. If you are managing nodes with Cisco PGW 2200 Softswitch hosts running different software versions, you can install multiple VSPT versions. Cisco MNM automatically launches the correct version for the selected host.

  For the latest VSPT patch, go to http://www.cisco.com/cgi-bin/tablebuild.pl/vspt.

  For Cisco MNM release notes, go to

  http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/prod_release_notes_list.html.

Note CD is the installation media for Cisco MNM, and DVD is the installation media for LMS 3.0 and CiscoView 6.1(6).

X Terminal Software

You must have Reflection 7.2 or higher installed to access Cisco MNM from a remote workstation. See the "Task 11: Set Up the X Terminal Workstations for Remote Access" section on page 2-20 for more information.

Solaris Operating System

The machines that run Cisco MNM must have the Sun Solaris 8 or 10 operating system with Common Desktop Environment (CDE) 1.3 installed.

Caution The Solaris language setting must be English and the locale setting must be English (C-7 bit ASCII). Other language and locale choices are not supported.

Required Information

Table 2-1 lists information you should have before you begin installation. Review the table and have it available as you work through the installation tasks.

Table 2-1 Required Information

Information	Where To Find It	Value
Superuser (su) password and privileges.	Your UNIX system administrator.	
Host name and host ID of the machine where Cisco EMF is to be installed (in a distributed configuration, the Management server).	On the machine, enter **hostname** at the command prompt. The host name displays. At the command prompt, enter **hostid.** The host ID displays. This is a hexadecimal string that identifies the system, not the IP address.	Hostname Host ID
Host IP address of the machine.	At the command prompt, enter **ifconfig -a**. If there are multiple interfaces, select the IP address of the interface where traps will be forwarded (as specified when you configure devices for network management). See Chapter 3 of the *Cisco Media Gateway Controller Node Manager User's Guide* at http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/products_user_guide_list.html.	
Product Authorization Key for Cisco EMF, to be used in Task 5: Make System Configuration Modifications.	On the Cisco EMF product CD sleeve.	

Table 2-1 Required Information

Information	Where To Find It	Value
DNS Domain of the machine where Cisco EMF will be installed (in a distributed configuration, the Management server) if your network uses DNS.	Your UNIX system administrator.	
IP address of the CiscoView server, required when you install Cisco MNM.		IP address

Task 2: Ensure That Network Devices Have the Correct Software

Cisco MNM interacts with other software that runs on the various components of the Cisco Media Gateway Controller node. The software on the device and the version or patch that is compatible with Cisco MNM need to match to prevent network management problems. See the software requirements for these components in the MNM 2.7(3) Release Notes at

http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/prod_release_notes_list.html

Caution Upgrades are released frequently. To ensure that you have the most recent software patch(es), check the website for the latest bulletins and upgrades.

Task 3: Plan and Execute Hard Drive Partitioning

By default, the Cisco EMF software is installed with standard UFS partitions (partitions with readable directory structures). However, we recommend using RAW File System (RAWFS) partitions (partitions without readable directory structures) for the database drives for larger networks, because RAWFS partitions offer the following advantages over UFS partitions:

- The capability to span multiple hard disks
- The option of having databases over 2GB in size

For more information, see the "Hard Drive Partitioning" section of the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Table 2-2 gives you hard drive partitioning recommendations.

Table 2-2 Hard Drive Partitioning Recommendations

Small to Medium-Sized Deployments[1]		Medium to Large-Sized Deployments[2]
Single Drive (73 GB)	**Single Drive (146 GB)**	**Dual Drives or Quad Drives**
filesys c1t0d0s0 4 GB / filesys c1t0d0s1 8 GB Solaris swap filesys c1t0d0s3 6 GB /var filesys c1t0d0s4 30 GB /opt filesys c1t0d0s5 8 GB /overlap filesys c1t0d0s6 6 GB /usr filesys c1t0d0s7 8 GB /exprt/home	filesys c1t0d0s0 4 GB / (Solaris remaining space for future allocation) filesys c1t0d0s1 10 GB Solaris swap filesys c1t0d0s3 6 GB /var filesys c1t0d0s4 50 GB /opt filesys c1t0d0s5 8 GB /overlap filesys c1t0d0s6 6 GB /usr filesys c1t0d0s7 8 GB /exprt/home	• Dual Drives—RAID 0 • Quad Drives—RAID 0+1

1. A small to medium-sized deployment applies to a network environment with no more than eight active/standby pairs of Cisco PGW 2200 Softswitches. The recommendations for the small to medium size deployment are based on Sun Sparc-based platforms with a single hard drive, and RAM size ranging from 2 GB to 8 GB.
2. A medium to large-sized deployment is supported by Sun Netra T2000 series or Sun Netra T5200 series platforms.

Task 4: Ensure That the Sun Solaris 8 or 10 Operating System Is Installed

Cisco MNM machines must have the Sun Solaris 8 or 10 operating system with CDE 1.3 installed. If the Sun Solaris 8 or 10 operating system is not already installed, install it according to instructions provided by the manufacturer.

Also install the latest J2SE Solaris 8 or 10 patch cluster, available at this URL:

http://sunsolve.sun.com/pub-cgi/show.pl?target=patches/patch-access

Note

- The Solaris 8 operating system is now at end of sale; therefore, migration to Solaris 10 is required. The next release of Cisco MNM may not support Solaris 8.
- If you prepare to install the Solaris 10 Operating System, install the Solaris 10 OEM Distribution kernel 11/06. Do not install the Cisco PGW 2200 Softswitch Solaris 10 Jumpstart or the Cisco PGW 2200 Softswitch OS recommended patches.
- If Cisco MNM coexists with CiscoView 6.1(6) on a Solaris 10 Operating System, the version of the Solaris Operating System must be the November 2006 release or higher, and the minimum recommended cluster patch levels are those released April 17, 2007.

Task 5: Make System Configuration Modifications

Two kinds of system modifications are required after the Solaris operating system and set up disk drives are installed:

1. Setting Up IP and Remote User Access Files
2. DNS Configurations

Setting Up IP and Remote User Access Files

After you have installed Solaris and added all hard drives, you need to edit files on the Management server that contain data for IP networking and remote user access. See Table 2-3 for instructions.

Table 2-3 IP Networking and Remote User Access Files

File	Modification
/etc/defaultrouter	Add the host name and IP address of the default gateway router that provides network access between remote users, network devices, and the standalone system or the Management server.
/etc/default/login	Add a # symbol at the front of the line that reads, "CONSOLE = /dev/console" to comment out the line. If you do not comment out this line, users cannot log in to the machine remotely.
/etc/default/login	Add the login accounts for all users accessing the server by Telnet.
/etc/hosts	Add the Presentation server's host information.

DNS Configurations

Use these steps to modify DNS configurations:

Step 1 Ask your IT administrator if DNS should be used. If yes, perform Steps 2 and 3. If no, perform Steps 4 and 5.

Step 2 If DNS *should* be used, the IT administrator must configure the hostname of your machine on the DNS server.

Step 3 Add the valid DNS server and domain name in /etc/resolv.conf.

Step 4 If DNS *should not* be used, delete the /etc/resolve.conf file if it exists.

Step 5 Verify that the host's entry in the /etc/nsswitch.conf file looks exactly like the following line:
hosts: files

Note If you change how DNS is configured after Cisco EMF is installed, you must uninstall and reinstall Cisco EMF. For more information on DNS configurations, see the *Cisco Element Management Framework Installation and Administration Guide* at http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Task 6: Obtain a Cisco EMF License

To start Cisco EMF, you must have a valid license key file available. In a distributed configuration, the license key is required on the Management server.

To obtain a required permanent license key file, do the following:

Step 1 Go to the Cisco Product License Registration site at https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet

Step 2 Fill in the Product Authorization Key (PAK). The PAK is provided on the Cisco EMF product CD sleeve.

Step 3 Click **Submit**.

Step 4 Verify that the product information shown on the screen is correct, and then click **Continue**.

Step 5 Select the version of the Cisco EMF product you are licensing in the Version number field.

Step 6 Enter the hostname of the server where the Cisco EMF product is installed. You can obtain the server's hostname by entering the hostname command at the server's command line prompt.

Note The server hostname must not include a period (.).

Step 7 Enter the host ID of the server where the Cisco EMF product is installed. (The host ID is a hexadecimal string that identifies the system; it is not the IP address.) You can obtain the server's host ID by entering the **hostid** command at the server's command line prompt.

Step 8 Read the End-User License Agreement and select **I Accept**. You must accept to get a license.

Step 9 Verify the registrant information shown on the screen.

Step 10 Click **Continue**.

Step 11 Verify the summarized information and click **Submit**.

The license request is submitted. The Cisco EMF permanent license key file is returned to you as an e-mail attachment.

Task 7: Install CiscoView 6.1(6) on a Solaris 10 Operating System

Note Cisco IP Transfer Point LinkExtender (ITP-L) replaces the term Cisco Signaling Link Terminal (SLT).

CiscoView is a graphical device management tool based on the Simple Network Management Protocol (SNMP) that provides real-time views of networked Cisco devices. Cisco MNM uses CiscoView to configure and monitor the Cisco ITP-L and the LAN switch (Cisco Catalyst 2900, 5500, and 6509) devices through a CiscoView server.

CiscoView is optional; install it only if you want to manage the Cisco ITP-L or LAN switches from Cisco MNM.

Install CiscoView 6.1(6) *before* installing Cisco MNM 2.7(3) so that you can identify the CiscoView server IP address that must be entered when you install Cisco MNM. You can install CiscoView locally on the Cisco MNM workstation or on a remote server.

Use these steps to install CiscoView 6.1(6):

Step 1 Insert the LMS 3.0 DVD that comes with your Cisco MNM package in the DVD-ROM drive.

Note

- CiscoView ships as part of LMS 3.0 with MGC Node Manager. Only the CiscoView part of LMS is provided. To obtain licenses for other LMS features, order LMS 3.0 from the Cisco.com website.

- If your machine does not have a DVD-ROM drive, see Table 2-5 in the Troubleshooting section for steps on mounting a DVD-ROM drive from a remote machine.

Step 2 Write down the CiscoView server IP address, which is needed for Task 9 when you install Cisco MNM.

Step 3 Run the installation setup script by entering:

```
# sh setup.sh
```

or

```
# ./setup.sh
```

Step 4 Press **Enter** to read the license agreement.

Step 5 Enter **Y** to accept the license agreement and proceed with the installation, or enter **N** to exit the installation.

Note

- Error messages or warning messages appear if you do not have the required or recommended Server and Client patches.
- CiscoView must use the default port number 1741. Do not modify this number during installation.

Step 6 Select one of the following installation modes:

a. Typical to select the components and install the selected components in the default location (/opt/CSCOpx). This is the default installation mode.

b. Custom to select optional components, customize the settings, and to specify the location.

Step 7 Select **CiscoView 6.1(6)** to begin the installation. When the installation is complete, the following messages display:

```
Software Installation Tool Completed
Possible Warnings/Errors Encountered
```

The warning and error messages that appear after these messages do not hinder the installation. They only indicate that you need to take corrective actions after the installation is complete.

Your Solaris machine has successfully installed CiscoView 6.1(6).

For more CiscoView installation details, see the *Installation and Setup Guide for CiscoView 5.4 (Standalone)* at

http://www.cisco.com/en/US/products/sw/cscowork/ps4565/products_installation_guide_book09186a00800e19f6.html

To get the supported device list, see the *User Guide for CiscoView 6.1(6)* at

http://www.cisco.com/en/US/docs/net_mgmt/ciscoworks_ciscoview/6.1.6/user/guide/cv_ug.html

After installing CiscoView 6.1(6), get the support list for Signaling Link Terminals ITP-Ls and Media Gateways (MGWs) by logging in to the CiscoView server. If your Cisco ITP-L or MGW isn't included in the list, download the device package at

http://www.cisco.com/cgi-bin/Software/CiscoView/cvplanner.cgi

Add the device package by following the instructions provided in the readme file.

Note If you are using CiscoView, be sure to install the CiscoView security module after installing Cisco MNM. See the "Task 10: Install the CiscoView Security Module" section on page 2-19.

Task 8: Install Cisco EMF 3.2

Follow the procedures below to install Cisco EMF 3.2 on a standalone system or on both machines (Management server and Presentation server) in a distributed configuration.

For more information on the Cisco EMF 3.2 installation, see the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Installing on the Management Server

Step 1 Log in as the root user on the machine where Cisco EMF is to be installed.

Step 2 Insert the Cisco EMF 3.2 Service Pack 7, CD #1 in the CD-ROM drive.

Step 3 Change the folder using the following command:

```
# cd /cdrom/cdrom0
```

Step 4 Invoke the Cisco EMF installation script using the following command:

```
# ./cemfinstall
```

A menu listing the Cisco EMF installation options displays.

Step 5 Select the **Cisco Element Manager Framework - Server** option, and press **Enter**.

Step 6 Accept the default location for the installation (<CEMF_ROOT>) and press **Enter**.

Step 7 Accept the default location (/opt/Backup) and press **Enter**.

Note You should specify a separate disk to gain better performance.

Step 8 Choose the hostname, and then press **Enter**.

Note If the there are more than one hostnames, choose the correct hostname. If the correct hostname is not listed in the menu, press **Enter**. Then enter the desired hostname and press **Enter**.

Step 9 Press **Enter** to verify that the setup information is correct.

Step 10 Enter *y* to accept the default DNS domain and press **Enter**.

Note To change the default DNS domain, enter **n** and press **Enter**. Then specify the DNS domain and press **Enter**.

Step 11 Enter **y** and press **Enter** to run the FlexLM daemon, which is provided with Cisco EMF.

Note To use an existing FlexLM daemon running on your system, enter **n** and press **Enter**.

Step 12 Press **Enter** if you have a valid license file available on your network. If you do not have a valid license file, enter **n**.

Note To obtain a license, see "Task 6: Obtain a Cisco EMF License" section on page 2-6.

Note If you do not have a valid license file, you can still continue with the installation. The installation process continues, but you cannot start the Cisco EMF Server until a valid license key is provided and the <CEMF_ROOT>/bin/cemf license command is run to update the license information.

Step 13 Enter the full name, including the path, of the license file and press **Enter**.

The installation process begins and takes several minutes. When the installation is complete, a message indicates that the Cisco EMF Server Package installation completed satisfactorily.

This completes the Cisco EMF installation procedure on the management server.

If you are using a distributed configuration (with the management server and the presentation server), continue installing Cisco EMF on the presentation server by following the steps in the "Installing on the Management Server" section on page 2-9. Otherwise, continue the installation by performing the procedure described in the "Installing Cisco EMF Service Packs" section on page 2-11.

Installing on the Presentation Server

Note Cisco EMF must be installed on the Management server first, and the Cisco EMF server must be started before a Presentation client is installed.

Step 1 Log in as the root user on the Presentation Server where the Cisco EMF client is to be installed.

Step 2 Insert the Cisco EMF 3.2 Service Pack 7, CD #1 in the CD-ROM drive.

Step 3 Change the folder using the following command:

```
# cd /cdrom/cdrom0
```

Step 4 Invoke the Cisco EMF installation script using the following command:

```
# ./cemfinstall
```

A menu listing the Cisco EMF installation options displays.

Step 5 Select the **Cisco Element Manager Framework - Client** option, and press **Enter**.

Step 6 Accept the default location for installation, /opt/cemf and press **Enter**.

Step 7 Specify the hostname of the management system where the Cisco EMF Server is installed, and then press **Enter**.

Step 8 Press **Enter** to confirm the hostname for the management server.

Note Enter **n** and press **Enter** if you want to change the hostname for the management server.

Step 9 Press Enter to confirm the hostname and corresponding IP address of the management server.

Note Enter **n** and press **Enter** if you want to change the values.

The installation process begins and takes several minutes. When the installation is complete, a message indicates that the Cisco EMF Server Package installation completed satisfactorily.

This completes the Cisco EMF installation procedure on the presentation server.

Note After installing the Cisco EMF 3.2 base version, you must install Cisco EMF Service Packs 7, 7.1, and 7.2. See "Installing Cisco EMF Service Packs" for more information.

Installing Cisco EMF Service Packs

Cisco MNM requires Cisco EMF Service Packs 7, 7.1, and 7.2. See the release notes for additional patch requirements.

To install Service Packs 7, 7.1, and 7.2, follow these steps.

Caution The Cisco EMF Service Packs must be installed in this order: 7, 7.1, and 7.2.

Step 1 Insert the Cisco EMF 3.2 Service Pack 7, CD #2 in the CD-ROM drive.

Note The Cisco EMF 3.2 Service Pack is also available at http://www.cisco.com/cgi-bin/tablebuild.pl/cemf-sp32-sp1

Step 2 Change the directory to cdrom using the following command:

```
# cd /cdrom/cdrom0
```

Step 3 Determine your current Cisco EMF version and patch level by entering this command:

```
# ./cemfinstall -show
```

Step 4 Proceed to Step 5 if Service Pack 7, 7.1, and 7.2 are not listed. Otherwise, you can skip this installation procedure for Cisco EMF service packs.

Step 5 Start the Cisco EMF installation script using the following command:

```
# ./cemfinstall
```

Step 6 Choose the package to install.

Note If you have a Cisco EMF Server installed, you can install only the server patch. If you have a Cisco EMF Client installed, you can install only the client patch.

The installation begins. Wait until the installation is complete.

This complete the installation procedure for Cisco EMF Service Packs 7, 7.1, and 7.2

Installing the Cisco EMF SSH Add-On Package

To enable SSH support on Cisco MNM running on Solaris 8 or 10, install the CEMF Crypto Add-on Package by following these steps:

Note We recommend installing SSH on Cisco MNM and Cisco VSPT before installing on the Cisco PGW 2200 Softswitch so that you can use the element managers to monitor the installation process on the Cisco PGW 2200 Softswitch and other managed components.

Step 1 Download the CEMF Crypto Add-on Package Software and the *CEMF Crypto Add-on Package Installation Guide* available from the network management download page at

http://www.cisco.com/cgi-bin/tablebuild.pl/cemf-addon-3des

Step 2 Under the heading, “Cisco Element Management Systems,” click **CEMF Strong Cryptographic Software**.

Note Authorization is required for downloading the cryptographic software. If you do not have authorization, you are automatically redirected to an authorization request page.

Step 3 Follow the installation instructions in the *CEMF Crytpo Add-on Package Installation Guide*.

Note Make sure the entry of SSH exists in the /etc/services file on the machine where Cisco MNM is installed.

Caution Using the # character in the /etc/motd banner may cause problems in the SSH connectivity. The # character might interfere in the scripts used in Cisco MNM. If you encounter problems using SSH with the installation of the CEMF Crypto Add-on package, and the SSH entry in the /etc/services file, try removing the motd banner.

Caution Do not use special characters, such as %$#@&, in the SSH password because the CEMF Crypto Add-on package does not support these special characters for the SSH password.

Downloading Cisco EMF Patches

To download a Cisco EMF patch, use these steps.

Note Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid contract but do not have a user ID or password, you can register at this URL: http://tools.cisco.com/RPF/register/register.do.

Step 1 Go to http://www.cisco.com/kobayashi/sw-center/sw-netmgmt.shtml.

Note There are no CEMF patches planned currently.

Step 2 Log in to Cisco.com. The Network Management Software page appears.

Step 3 Click **Cisco Element Management Framework**. The Software Download page appears.

Step 4 Select the version of the CEMF Patch that you want to download to your system.

Step 5 Log in and follow the on-screen prompts.

Starting Cisco EMF

To initiate background processes in Cisco EMF, use these steps:

Step 1 Log in to the system where you installed Cisco EMF

Step 2 Become the root user using the following command:

```
# su - root
```

Step 3 Change the working directory to <CEMF_ROOT>/bin using the following command:

```
# cd <CEMF_ROOT>/bin
```

Where <CEMF_ROOT> is the directory where Cisco EMF is installed.

Step 4 Use the following command to start Cisco EMF if the Cisco EMF background processes are not already running

```
#./cemf start
```

Note Depending on your server, it might take 10-30 minutes for the Cisco EMF startup processes to complete. A relatively longer startup might occur if your database is new or has been reset.

Task 9: Install Cisco MNM Release 2.7(3) and Verify the Installation

Follow the instructions in this section to install Cisco MNM. If you are upgrading from Version 1.5 or 2.x, see the "Upgrading from Previous Cisco MNM Releases" section on page 2-21.

Check for the latest software patches by going to the URL provided in the "Installation Software" section on page 2-1.

Note The Cisco MNM software must be installed as the **root** user.

Follow the procedure below to install Cisco MNM on a standalone system or on both machines (management server and presentation server) in a distributed configuration. The Cisco MNM installation process automatically detects if the complete Cisco EMF software is installed, or only the Cisco EMF client, and then it installs the correct Cisco MNM components.

Installing Cisco MNM

Step 1 Start Cisco EMF if it is not already running.

Step 2 Change the working directory using the following command:

```
% cd <CEMF_ROOT>/bin
```

Step 3 Verify that Cisco EMF is running using the following command

```
% ./cemf query
```

Text similar to the following is displayed:

```
CEMF Manager 3.2 initialized
```

Step 4 Change to the root user using the following command:

```
# su - root
```

Step 5 Verify that the Volume Management daemon is running using the following command:

```
# ps -ef | grep vold
```

Text similar to the following is displayed:

```
root   483   1  0   Oct 23 ?  0:00 /usr/sbin/vold -f /etc/vold.conf
```

Note If the daemon is not running, start the daemon using the following command:
/etc/init.d/volmgt start
Verify that the Volume Management daemon is running with the command provided above. If it is still not running, contact your system administrator.

Step 6 Insert the Cisco MNM CD in the CD-ROM drive.

Step 7 Enter the following command:

```
# cd /cdrom/cscocmnm
```

Step 8 Enter the following command to start the installation

```
# ./cmnminstall
```

Text similar to the following is displayed:

```
------------------------------------------------------------------------
                  Cisco MGC-Node Manager Installation
                       Mon Oct 27 02:51:35 PM
------------------------------------------------------------------------

Setup has detected that the CEMF Manager software is installed.
Do you wish to install the CSCOcmnm Manager software. [y/n]:
```

Note To upgrade to the next release of Cisco MNM, use the command: **./cmnminstall -u**

Step 9 Enter **y** and press **Enter** to continue.

Step 10 Enter the required information as follows:

- Database backed up—Press **Enter** if you had your databases backed up.
- CiscoView Server IP address—Enter the IP address of the CiscoView server installed in "Task 7: Install CiscoView 6.1(6) on a Solaris 10 Operating System" section on page 2-7. If you are not using CiscoView, press **Enter**.
- Logfile directory location—Press **Enter** to accept the default location /var/tmp, or enter another location and press **Enter**.
- Logfile name—Press **Enter** to accept the default name CSCOcmnm.log, or enter another name and press **Enter**.

Step 11 Enter **y** to proceed with the installation if the disk space is sufficient.

When the installation is complete, text similar to the following is displayed:

```
Everything appears to be installed correctly.
```

Note The installation might take 15–40 minutes, depending on your system. If the installation is not successful, check the installation log, /var/tmp/installCSCOcmnm.log.

This completes the Cisco MNM installation procedure. Continue with "Verifying the Cisco MNM Installation" section on page 2-15.

Verifying the Cisco MNM Installation

Step 1 Before starting Cisco MNM, verify that the package is installed by using the following command:

```
# pkginfo CSCOcmnm
```

Text similar to the following is displayed:

```
application CSCOcmnm    Cisco MGC-Node Manager(CMNM)2.7.3
```

Step 2 Verify that the Cisco MNM element managers have been installed using the following command:

```
# <CEMF_ROOT>/bin/cmnmversion -verbose
```

Text similar to the following is displayed:

```
        CSCOcmnm Tool Versions

                    Patch Build  Build
     Name Version Level  Num   Type
-----------------------------------
 CSCOcmnm 2.7.3(FCS)     00  060107 REL
 CSCOcmcv  2.7.3
 CSCOcmhp  2.7.3  00
```

```
    CSCOcemfm    3.2 Patch: 170007-06
Patch: 190701-05
Patch: 190702-01

    -----------------------------------

     CSCOcmnm Element Manager Versions

                     Patch Build  Build
         Name Version Level  Num   Type
    -----------------------------------
      hostEMm 2.7.3   00    060107 REL
       mgcEMm 2.7.3   00    060107 REL
    -----------------------------------
```

Note The information displayed when you run this script varies with the Cisco MNM release and the patch you are using.

Table 2-4 Element Managers

mgcEM	Common Element Manager for Cisco PGW 2200 Softswitch node devices
hostEM	Element Manager for Cisco PGW 2200 Softswitch host signaling, trunking, and dial plan components

Note If you suspect problems with the installation, check the installation log file (which by default is /var/tmp/installCSCOcmnm.log) to search for errors.

Verifying the Installation of CiscoView 6.1(6)

Before starting Cisco MNM, verify that the CiscoView 6.1(6) package is installed by entering the following command:

```
# ./cmnmupdateCVip -s
```

- If the package is installed, text similar to the following is displayed:

  ```
  Current Ciscoview IP Address: 10.10.10.10
  ```

  where 10.10.10.10 is the server IP address.
- If the package is not installed, text similar to the following is displayed:

  ```
  ./modules/installUtilities: not found
  ```

CiscoView is designed to work with CiscoWorks 2000. If you install CiscoView packages outside this environment, certain functions are not supported. The following CiscoView buttons do not work in the Cisco MNM environment:

- Telnet
- CCO connection
- Preferences

- About
- Help

Note When you are running xdsu, the following exception is generated and can be ignored:
`ERROR: exception occurred while examining Integration Utility configuration: com.cisco.nm.nmim.nmic.IntgUtilCheckConfig`

Changing the IP Address of the CiscoView Server If Needed

During the installation of Cisco MNM, the IP address of the CiscoView server is filled in. If you need to change the IP address after Cisco MNM is installed, enter the following command from the Cisco EMF base directory:

```
# ./cmnmupdateCVip -i new CiscoView IP address
```

Text similar to the following is displayed:

```
cmnm CiscoView Server IP Addresses changed
From: <old IP address>
To: <new IP address>
```

Starting Cisco MNM

Use the following steps to start Cisco MNM:

Step 1 Start Cisco EMF.

Step 2 Log in with your user ID.

Step 3 Change to the directory using the following command:

```
% cd <CEMF_ROOT>/bin
```

Note An X-server must be running, and the DISPLAY environment variable must be properly configured. Use one of the following commands, depending on which shell you are using, to set the x-display variable:

In “csh” or “tcsh”: **setenv DISPLAY <hostname>:<display number>**
In “sh” or “ksh”: **DISPLAY=<hostname>:<display number>;export $DISPLAY**
The default value for the display number is 0.

Step 4 Start the Cisco MNM using the following command:

```
% ./cemf session
```

Step 5 Enter your login name and password.

Note The default Cisco MNM login and password is **admin**. Use the login and password configured for your system.

For help with navigation and basic operations, see Chapter 3, "Getting Started with Cisco MNM" in the *Cisco Media Gateway Controller Node Manager User's Guide* at

http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/products_user_guide_list.html

If you are using SSH for secure communications with SSH-enabled network devices, go to the next section, Getting Started with Secure Communications on Cisco MNM.

Getting Started with Secure Communications on Cisco MNM

This section tells you how to enable secure communications on network devices managed with Cisco MNM.

Before you begin: The CEMF Crypto Add-on Package must already be installed (see the "Installing the Cisco EMF SSH Add-On Package" section on page 2-12), and you must know the security policy for the elements you are enabling.

Note SSH is enabled on network elements directly, not by the use of Cisco MNM. See the network element documents at http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/tsd_products_support_series_home.html for Cisco PGW 2200 Softswitch, Cisco HSI, and Cisco BAMS.

You do not need to know the specific SSH version. Cisco MNM automatically negotiates the correct version (SSH 2 if available or SSH 1.x).

Do you have existing (already deployed in Cisco MNM) network elements that are now SSH-enabled? See the "Updating Existing SSH-Enabled Network Elements" section on page 2-18.

Do you want to deploy new network elements that are SSH-enabled? See the "Deploying New SSH-Enabled Elements" section on page 2-18.

Updating Existing SSH-Enabled Network Elements

Use this procedure to set SSH as the security policy for network elements that are already deployed and SSH-enabled:

Step 1 In the Map Viewer, select the SSH-enabled element you want to update.

Step 2 Right-click and choose **Accounts**. The Accounts dialog box opens.

Step 3 For Security Policy, select **SSH**. (**None** is the default.)

Step 4 Click **Save**.

Step 5 Repeat the steps above for the remaining SSH-enabled elements.

Deploying New SSH-Enabled Elements

Use this procedure to deploy new elements that have been SSH-enabled:

Step 1 For **Security Policy** in the Deployment Wizard template, select **SSH** and follow the on-screen prompts.

Step 2 Click **Finish**.

Cisco MNM finds the new elements using the appropriate SSH protocol. Non-SNMP communication with elements now uses SSH secure utilities.

Identifying SSH-Enabled Elements

You can find out if an element uses SSH by checking the Security Policy in the Accounts dialog box.

Task 10: Install the CiscoView Security Module

If you are using CiscoView, you must install the CiscoView Security Module on the CiscoView server after CiscoView and Cisco MNM have been installed.

Step 1 Find the IP address that Cisco MNM is using for the CiscoView server.

For example, if Cisco EMF is installed in <CEMF_ROOT>, enter

```
% <CEMF_ROOT>/bin/cmnmupdateCVip -showip
```

Note An IP address of 0.0.0.0 is the local workstation.

If the address is not correct, see the "Changing the IP Address of the CiscoView Server If Needed" section on page 2-17 for instructions.

Step 2 Locate the CSCOcvsec.pkg that is shipped with the Cisco MNM software that resides in the following ciscoviewsecurity directory:

```
# cd ciscoviewsecurity
```

If the CiscoView server *is not* installed on the Cisco EMF server, go to Step 3. If the CiscoView server *is* installed on the Cisco EMF server, go to Step 5.

Step 3 Use ftp to copy the CSCOcvsec package to the CiscoView server using the CiscoView server IP address you determined with the cmnmupdateCVip command:

```
% ftp cvserverIPAddress
ftp> cd /tmp
ftp> binary
ftp> put CSCOcvsec.pkg /tmp/CSCOcvsec.pkg
```

Step 4 Use Telnet (or SSH) to connect to the CiscoView server using the following command:

```
# telnet cvserver
```

Step 5 Change the user to root.

```
% su - root
```

Step 6 Install the package using the following command:

```
# /usr/sbin/pkgadd -d /tmp/CSCOcvsec.pkg
```

Note If you uninstall and reinstall Cisco MNM, you must reinstall the security package.

Task 11: Set Up the X Terminal Workstations for Remote Access

Use the steps below to create an XDMCP connection to access Cisco MNM remotely from a workstation or PC.

Note Cisco MNM has been tested with the Reflection 7.20 X server software package.

Creating an XDMCP Connection

For Reflection software to display Cisco MNM correctly, it must be run in the XDMCP mode. For the host name, use the name of the Presentation server (in a distributed configuration) or the name of the standalone system.

Step 1 Start the Reflection software.

Step 2 From the Connection menu, choose **New XDMCP Connection**.

Step 3 From the Method pull-down menu, choose **Broadcast** or **Direct**, and continue with one of the following set of steps:

For Broadcast method:

a. Click **Connect**.

b. Select the appropriate XDMCP computer. If you do not know which computer to select, contact your system administrator.

For Direct method:

a. In the Host Name field, enter the host name of the XDMCP computer.

b. Click **Connect**.

In either method, an X terminal window opens on the host machine. Start Cisco MNM in the usual manner, as described in the "Starting Cisco MNM" section on page 2-17.

Note If the Cisco EMF Launchpad displays but appears to be inactive, check for a message box behind the Launchpad that reads "there are insufficient colors available for Cisco EMF Manager." You can safely ignore this message and close the message box, or remedy the problem as described in the "Fixing Insufficient Color Problems" section on page 2-21.

Creating a Workstation Connection

To connect to Cisco MNM from a remote UNIX workstation, use the following procedure:

Step 1 Open an X terminal window.

Step 2 Use Telnet to connect to the Cisco MNM host.

Step 3 Enter the following command to change to the Cisco MNM directory:

```
# cd <CEMF_ROOT>/bin
```

Step 4 Enter the following command to launch Cisco MNM:

```
# ./cemf session
```

Fixing Insufficient Color Problems

To fix the "… insufficient colors available for Cisco EMF Manager" problem, see the procedure in the "Configuring Reflection X Version 7.20 to Support Cisco EMF Color Usage" section in the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Task 12. Synchronize Time

After installing Cisco MNM, you should synchronize the time configured for the Cisco MGC, Cisco MNM, and the Billing and Measurement Server (BAMS). To ensure that the Cisco MNM records are correct, these components should all be configured to Greenwich Mean Time (GMT). For instructions on setting the time for these components, see both the *Cisco Media Gateway Controller Software Release 9 Installation and Configuration Guide* at

http://www.cisco.com/en/US/products/hw/vcallcon/ps2027/prod_installation_guides_list.html

and the *Cisco Billing and Measurements Server User's Guide* for your BAMS server at

http://www.cisco.com/en/US/products/sw/voicesw/ps522/products_user_guide_list.html.

Task 13: Configure Network Devices to Forward Alarms

The final task in readying Cisco MNM for network management is to configure the devices in the network so that they send alarm information to Cisco MNM. For more information, see Chapter 3 in the *Cisco Media Gateway Controller Node Manager User's Guide* at

http://www.cisco.com/en/US/products/sw/netmgtsw/ps1912/products_user_guide_list.html

Upgrading from Previous Cisco MNM Releases

When you upgrade from a previous release of Cisco MNM, the installation updates the content but leaves your existing data intact (for example, network data and user access settings). You do not need to uninstall your previous release before upgrading.

When upgrading CiscoView, upgrade according to the LMS 3.0 installation guide. CiscoView 6.1(6) requires more disk space than the previous release, and if the space is insufficient, CiscoView 6.1(6) can be installed on another machine. If you install CiscoView 6.1(6) on another machine, use the following command to reconfigure CiscoView server's IP address: # **<CEMF_ROOT>/bin/cmnmupdateCVip -i <CiscoView_NewServer_IP>**.

Although the upgrade option preserves your data, we recommend that you perform a backup before upgrading, as described in the "Uninstalling Cisco MNM" section on page 2-23.

Use the following steps to upgrade from a previous Cisco MNM release:

Step 1 Read the "Installation Checklist" section on page 1-5 to identify other tasks needed for the upgrade.

Step 2 Have Cisco EMF and Cisco MNM running.

Step 3 Change the working directory using the following command:

```
% cd <CEMF_ROOT>/bin
```

Step 4 Verify that Cisco EMF is running using the following command

```
% ./cemf query
```

Text similar to the following is displayed:

```
CEMF Manager 3.2 initialized
```

Step 5 Change to the root user using the following command:

```
# su - root
```

Step 6 Verify that the Volume Management daemon is running using the following command:

```
# ps -ef | grep vold
```

Text similar to the following is displayed:

```
root   483   1  0   Oct 23 ?  0:00 /usr/sbin/vold -f /etc/vold.conf
```

Note If the daemon is not running, start the daemon using the following command:
/etc/init.d/volmgt start
Verify that the Volume Management daemon is running with the command provided above. If it is still not running, contact your system administrator.

Step 7 Insert the Cisco MNM 2.7(3) CD in the CD-ROM drive:

Step 8 Change the working folder using the following command:

```
# cd /cdrom/cscocmnm
```

Step 9 Back up your database (see the "Backing Up Your Databases" section on page 2-23).

Step 10 Start Cisco MNM.

Step 11 Close Cisco MNM.

Step 12 Eject the Cisco MNM 2.7(3) CD.

Step 13 Insert the Cisco EMF 3.2 Service Pack 7, CD #2 in the CD-ROM drive.

Step 14 Install the CEMF 3.2 Service Packs 7, 7.1, and 7.2.

Step 15 Enter either the following commands:

```
# ./cmnminstall -u
```

or

```
# ./cmnminstall -upgrade
```

Text similar to the following is displayed:

```
-------------------------------------------------------------------------
                  Cisco MGC-Node Manager Installation
                       Wed Oct 29 07:57:46 PM
-------------------------------------------------------------------------
```

```
Setup has detected that the CEMF Manager software is installed.
Do you wish to install the CSCOcmnm Manager software. [y/n]: [y]
```

Step 16 Enter **y** and press **Enter** to continue the upgrade.

Step 17 Enter the required information as summarized here:

- Database backed up—Press **Enter** if you had your databases backed up.
- CiscoView Server IP address—Enter the IP address of the CiscoView server installed in "Task 7: Install CiscoView 6.1(6) on a Solaris 10 Operating System" section on page 2-7. If you are not using CiscoView, press **Enter**.
- Logfile directory location—Press **Enter** to accept the default location /var/tmp, or enter another location and press **Enter**.
- Logfile name—Press **Enter** to accept the default name CSCOcmnm.log, or enter another name and press **Enter**.

Text similar to the following is displayed:

```
        **WARNING** We don't check diskspace for upgrade right now.

                    It is the user's responsibility to make sure there is enough free
diskspace.

Continue with CSCOcmnm install [y,n,?]
```

Step 18 Enter **y** to continue the upgrade.

Step 19 Verify the upgrade according to the instructions in the "Verifying the Cisco MNM Installation" section on page 2-15.

Step 20 Start Cisco MNM and do the rediscover of the following objects:

- All BAMS objects, using the Map Viewer BAMS-View
- All HSI objects, using the Map Viewer HSI-View
- All MGC objects, using the Map Viewer MGC-Node-View

Note During the upgrade process, you might see error messages caused by Cisco EMF trying to create controllers that already exist. These messages can be safely ignored.

Backing Up Your Databases

If you are upgrading from Cisco MNM 2.x, the upgrade process retains your databases. However, it is good practice to back up your databases before upgrading. For more information, see the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Uninstalling Cisco MNM

Cisco EMF must be running in order for you to uninstall Cisco MNM. Use the following procedure to uninstall the Cisco MNM software:

Step 1 If Cisco MNM is running, quit it. Do not stop Cisco EMF.

Step 2 Insert the Cisco MNM 2.7(3) CD in the CD-ROM drive:

Step 3 Change the working folder using the following command:

```
# cd /cdrom/cscocmnm
```

Step 4 Enter either the following commands:

```
# ./cmnminstall -r
```

or

```
# ./cmnminstall -remove
```

Text similar to the following is displayed:

```
------------------------------------------------------------------------
                  Cisco MGC-Node Manager Installation
                       Mon Oct 27 03:51:35 PM
------------------------------------------------------------------------

Setup has detected that the CEMF Manager and CSCOcmnm Manager
software is installed on this workstation.
Do you wish to uninstall the CSCOcmnm Manager software. [y/n]: [n]
```

Step 5 Enter **y** to uninstall Cisco MNM.

Text similar to the following is displayed:

```
It is recommended that your databases are backed up before
running this command.

Have your databases been backed up [y/n]: [n]
```

Step 6 Enter **y** and press **Enter**.

Step 7 Press Enter twice to accept the default log file directory and the default log file name.

Text similar to the following is displayed:

```
Continue with CSCOcmnm uninstall [y,n,?]
```

Step 8 Enter **y** to continue the uninstallation.

Step 9 Use the following procedure to verify that Cisco MNM was successfully uninstalled:

- Enter **pkginfo CSCOcmnm** to verify that the CSCOcmnm package could not be found.
- Enter **pkginfo hostEM** to verify that the hostEM package could not be found.
- Enter **pkginfo mgcEM** to verify that the mgcEM package could not be found.
- Enter **pkginfo CSCOcmcv** to verify that the CSCOcmcv package could not be found.

This completes the uninstallation procedure of Cisco MNM.

Displaying Current Cisco MNM Release Packages

To display the current Cisco MNM release packages, do the following:

Step 1 Log in as the root user.

Step 2 Insert the Cisco MNM 2.7(3) CD in the CD-ROM drive:

Step 3 Change the working folder using the following command:

```
# cd /cdrom/cscocmnm
```

Step 4 Enter either the following commands:

```
# ./cmnminstall -s
```

or

```
# ./cmnminstall -show
```

All current Cisco MNM release packages display.

Viewing Help for Cisco MNM Install Scripts

To view the help content of the current Cisco MNM packages, do the following:

Step 1 Log in as the root user.

Step 2 Insert the Cisco MNM 2.7(3) CD in the CD-ROM drive:

Step 3 Change the working folder using the following command:

```
# cd /cdrom/cscocmnm
```

Step 4 Enter either the following commands:

```
# ./cmnminstall -h
```

or

```
# ./cmnminstall -help
```

The help information script displays.

Uninstalling Cisco EMF

You must uninstall Cisco MNM before uninstalling Cisco EMF. When Cisco EMF is uninstalled, all Cisco EMF processes are automatically stopped. If ObjectStore was installed as part of the Cisco EMF installation, it is removed during uninstallation. If ObjectStore was installed as a separate package before the Cisco EMF installation, ObjectStore remains installed after Cisco EMF is uninstalled.

Use the following procedure to uninstall Cisco EMF:

Step 1 As a superuser (su), log in to the machine where Cisco EMF is installed.

Step 2 Verify that Cisco MNM has been uninstalled.

Step 3 Insert the Cisco EMF 3.2 Service Pack 7, CD #1 in the CD-ROM drive.

Step 4 Change the folder using the following command:

```
# cd /cdrom/cdrom0
```

Step 5 Remove the Cisco EMF using the following command:

```
# ./cemfinstall -remove
```

Cisco EMF is uninstalled.

For more information on Cisco EMF, see the *Cisco Element Management Framework Installation and Administration Guide* at

http://www.cisco.com/en/US/docs/net_mgmt/element_manager_system/3.2_service_pack_7/installation/guide/3_2p7adm.pdf

Troubleshooting Common Installation Problems

Carefully following the "Installation Checklist" in Chapter 1 helps you to avoid most installation pitfalls. But if a problem occurs, check this section for troubleshooting guidelines.

See Table 2-5 for suggested steps on troubleshooting common installation problems.

Related Topics

Cisco Media Gateway Controller Node Manager User's Guide, Appendix C, "Troubleshooting Cisco MNM".

"Problems Installing an Element Manager on Cisco EMF" in the "Troubleshooting" section of the *Cisco Element Management Framework Installation and Configuration Guide Version 3.2 Service Pack 7*

Table 2-5 Troubleshooting Installation Problems

Problem	Suggested Steps

No local DVD-ROM drive is available.	**Mounting a DVD-ROM Drive from a Remote System**
	Use these steps to mount a remote DVD-ROM drive:
	Note The steps below show you how to mount a DVD-ROM driver from a remote system. It provides general information only. For more information, refer to the Sun Solaris documentation or consult your IT administrator.
	1. Insert the DVD-ROM in the DVD-ROM drive of the remote system. The DVD-ROM should work normally on the remote system. If it does not, consult with your IT administrator.
	Note The DVD-ROM is mounted as /cdrom/cdrom0.
	2. Log in to the remote system as the root user, and use a text editor to create the **/etc/dfs/dfstab** file if it does not exist.
	Note **x** is the DVD-ROM drive controller number, **y** is the DVD-ROM drive SCSI ID number, and **z** is the slice of the partition on which the DVD-ROM is located.
	3. On the remote system, enter the following command to share the DVD-ROM on the network:
	`share -F nfs -o ro -d "NFS description" /cdrom/cdrom0`
	4. Log in as the superuser by entering the command **su** and the root password, or log in as the root user. If the /cdrom directory does not already exist, enter the following command to create it:
	`# mkdir -p /cdrom/cmnm`
	5. Mount the DVD-ROM drive by entering the following:
	`# /usr/sbin/mount -r remote_host_name:/cdrom/cdrom0 /cdrom/cmnm`
	The DVD-ROM drive is mounted.

How to unmount a remote DVD-ROM drive	**Unmouting a DVD-ROM Drive From a Remote System**
	After you complete the installation of CiscoView 6.1(6) from a remote DVD-ROM, you must unmount the remote DVD-ROM from your local system.
	To unmount a remote DVD-ROM from a local machine, use these steps:
	1. Log in to the local machine as root, and enter the following command:
	`# umount /cdrom/cmnm`
	Note Assume that "cmnm" is the directory where the remote DVD-ROM was originally mounted.
	2. Log in to the remote machine as root, and enter the following command:
	`# unshare -F nfs -o ro /cdrom/cdrom0`
	The DVD-ROM drive is unmounted.

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps
You get the message, "Cannot connect to session" when you try to start a Cisco MNM session.	Make sure that Cisco EMF is running. • If Cisco EMF is not running, start it, and then retry starting Cisco MGC Node Manager. • If Cisco EMF is running, check to see if the IP address or host name of the Cisco MNM server has changed since Cisco MNM was installed. If it has, follow the steps described for the next problem.
License challenges	Verify the following: • The license file has a .lic extension. • The license file is present in the <CEMF_ROOT>/config/licenses directory. • The license has not expired. If it has, get a new license at https://tools.cisco.com/SWIFT/Licensing/PrivateRegistrationServlet. For detailed instructions, see "Task 6: Obtain a Cisco EMF License". • The license is a multi-user license. • The license file was not issued for a different machine. The license is machine-specific; you cannot move a license file from one machine to another but must get a new license for your current machine.
Uninstallation problem	Make sure you are uninstalling in the correct sequence. Before uninstalling Cisco EMF, you must uninstall Cisco MNM. Before uninstalling Cisco MNM, make sure that Cisco EMF is running.
Password problems	Reset the password.

You get the message, "System IP address does not match database address" when you try to start Cisco EMF.	This can be caused by a change in the IP address or host name of the Cisco MNM server after Cisco MNM was installed. Use the following steps to correct the problem:
	1. Stop Cisco EMF:
	`<CEMF_ROOT>/bin/cemf stop`
	2. If needed, update the IP address in Cisco EMF:
	`<CEMF_ROOT>/bin/cemf updateIP -m`
	When prompted, enter the new IP address.
	3. If needed, update the host name in Cisco EMF:
	`<CEMF_ROOT>/bin/cemf updateName -m`
	When prompted, enter the new host name.
	4. Restart Cisco EMF:
	`<CEMF_ROOT>/bin/cemf start`
	Note If the Management server address or name has changed in a distributed configuration, make the necessary changes on both the Management server and the Presentation server. If the Presentation server address or name has changed, make the changes on the Presentation server only.

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps

ObjectStore problems starting CEMF on workstations with 16GB of RAM or more	ObjectStore cannot start up properly on a Cisco EMF server installed on a large workstation with 16GB of RAM or more. Use the following steps to correct the problem:
	1. Identify the CEMF AppsServer.ini and ObjectServer.ini failure in **<CEMF_ROOT>/log/sysmgr.log**.
	2. Remove the partial EM Installation (mgcEMm and the hostEMm).
	`<CEMF_ROOT>/bin/cemf load -remove mgcEMm -skipportcheck`
	3. Stop Cisco EMF:
	`<CEMF_ROOT>/bin/cemf stop`
	4. Clear the cache files by deleting the files in /tmp/ostore:
	`rm -rf /tmp/ostore/*`
	5. Change the cache size settings in the following files by reducing each setting by a factor of four.
	`abstractionServer.ini:cacheSize = 2`
	`agServer.ini:cacheSize = 4`
	`alarmDirServer.ini:cacheSize = 4`
	`appsServer.ini:cacheSize = 32`
	`asyncIosDataRepository.ini:cacheSize = 4`
	`asyncSnmpDataRepositoryCommon.include:cacheSize = 0`
	`attributeHistoryCollector.ini:cacheSize = 24`
	`attributeHistoryServer.ini:cacheSize = 8`

Table 2-5 Troubleshooting Installation Problems (continued)

Problem	Suggested Steps
	genericController.ini:cacheSize = 4 **localDBServer.ini:cacheSize = 16** **mapServer.ini:cacheSize = 4** **nbinterface.ini:cacheSize = 4** **notificationServer.ini:cacheSize = 8** **objectServer.ini:cacheSize = 32** **ogServer.ini:cacheSize = 4** **pasTestRig.ini:cacheSize = 16** **pollerServer.ini:cacheSize = 2** **queryServer.ini:cacheSize = 8** **reallocator.ini:cacheSize = 16** **RMEBridge.ini:cacheSize = 4** **statusPropagationRecalculator.ini:cacheSize = 4** **statusPropagationServer.ini:cacheSize = 16** **trapAlarmMapper.ini:cacheSize = 16** **trServer.ini:cacheSize = 8** **vectorServer.ini:cacheSize = 6** **virtualAttributeServer.ini:cacheSize = 4** 6. Restart Cisco EMF. **<CEMF_ROOT>/bin/cemf start** 7. Check the file **<CEMF_ROOT>/log/sysmgr.log** for ObjectStore failures. If you don't see ObjectStore errors in this file, this completes the troubleshooting procedure for this problem. If you see ObjectStore errors similar to the following, go to Step 8. `INFO processControl.cc:1240 AV process produced bad message: [ObjectServer], [PID : 18736] No handler for exception: ObjectStore internal error <maint-0025-0045> The client communication area is filled up. (err_internal)` 8. Stop Cisco EMF: **<CEMF_ROOT>/bin/cemf stop** 9. Set the following values in the **<CEMF_ROOT>/config/env/avCore.sh** file. **OS_COMMSEG_SIZE=26640384; export OS_COMMSEG_SIZE** **OS_COMMSEG_RESERVED_SIZE=26640384; export OS_COMMSEG_RESERVED_SIZE** 10. Restart Cisco EMF. **<CEMF_ROOT>/bin/cemf start**

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